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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,791	06/06/2006	Mark Lawrence Williams	1033963-000025	5493

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BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
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EXAMINER	
ANDREWS, LEON T	
ART UNIT	PAPER NUMBER
2462	

NOTIFICATION DATE	DELIVERY MODE
01/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/581,791	WILLIAMS, MARK LAWRENCE	
	Examiner	Art Unit	
	LEON ANDREWS	2462	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. **Claims 1-9** are rejected under 35 U.S.C. 103(a) by Mookerjee et al. (Patent No.: US 7,180,443 B1) in view of Eid et al. (Patent No.: US 6,502,042 B1).

Regarding Claims 1 and 5, Mookerjee et al. discloses a network (Fig. 1. 10, tracking system includes a radar antenna that transmits and receive signals, column 1, lines 18-22) and a method (method comprises the steps of initializing a filter with an initial state machine and matrices, columns 5 and 6, lines 66-67 and 1-2 respectively) for estimating a system state (state estimation processing measurements of system, column 1, lines 7-8), the network comprising a plurality of nodes (Fig. 1, aircraft 12 and radar antenna 14a; linear and nonlinear systems, column 11, line 63), each node having means for receiving and sending information (Fig. 1, radar antenna 14a and aircraft 12 transmit and receive signals, column 1, lines 1-23) and means for processing information (Fig. 1, measurements applied to processing arrangement 16, column 1, lines 28-29), and each node being connected to selected other nodes (Fig. 1, aircraft 12 and radar antenna 14a) of the network, each node including:

particle filter means (Fig. 3, 322, compute filter; systems to which filters apply, column 11, lines 63-64) for maintaining a set of particles (systems with parameters as inputs, column 11, lines 65-66; systems such as aircraft, space station, etc, column 12, lines 17-23) and associated weights (weighting the measurement of the state of the system, column 6, lines 28-29), which represent an estimate of the system state, and means for updating the set (Fig. 3, 326, updating state estimate; state estimate is updated with filter matrix weighting the measurement of the state

of the system, column 6, lines 27-29; weighting the states with new measurement at each update of the filter, column 9, lines 22-23) when new information is available,

means (Fig. 3, initialize state estimate; estimating the state of the system, column 4, lines 29-30; state estimation of a system, column 5, lies 63-64) for representing the estimating system state as a mixture of Gaussian distributions (Gaussian distribution approximates the maximum accelerations produced by the parameters and represented by a statistical model by weighting the states with a measurement at the filter, column 9, lines 9-22), and means for communicating (Fig. 1, radar antenna 14a transmits and receives signals, column 1, lines 21-22) said mixture to neighbouring nodes,

said means for updating, being responsive to receiving said mixture from a neighbouring node (Fig. 3, 324, input measurement from sensor), for updating its estimate of the system state (Fig. 3, 326, updating state estimate).

Mookerjee et al. fails to disclose plurality of nodes.

But, the Eid et al. discloses in Fig. 10, plurality of nodes, column 13, line 24.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Eid et al.'s plurality of nodes because this would have allowed each of the input nodes in the input layer to be connected to each of the nodes in the hidden layer, column 13, lines 25-27

Regarding Claims 2 and 7, Mookerjee et al. discloses a network and a method, wherein said channel filter is operative to compute new weights (Fig. 3, 322, compute filter gains; filter

weighting the measurement of the state of the system to generate current (new) system estimate, column 6, lines 28-31) for each particle in a resampling operation (state estimate updated (resampling) with the filter, column 6, lines 27-28), the new weights (weighting the states with new measurement at each update of the filter, column 9, lines 22-23) comprising said mixture of Gaussian distributions (Gaussian distribution in an equivalent statistical and filter models airplane tracking, column 9, lines 9-15) communicated to the node, divided by said mixture of Gaussian distributions (Gaussian distribution in an equivalent statistical and filter models airplane tracking, weighting the states with new measurement with each successive update of the filter, column 9, lines 9-23) representing the existing particle set at said node.

Regarding Claims 3 and 8, Mookerjee et al. discloses a network and a method, wherein said means for communicating is operative to transmit each Gaussian distribution (Gaussian distribution in the filter model defined to have covariance using this filter model, whereby the covariance is achievable by weighting the states with new measurement with each successive update of the filter, column 9, lines 12-23) of said mixture as signals representing the mean and covariance (Fig. 3, 326, update state estimate, covariance) of the distribution.

Regarding Claims 4 and 6, Mookerjee et al. discloses a network and a method, wherein a communication port (port of the radar system 14, column 1, lines 25-26) of each node includes a channel filter (filter for fusion of data from multiple sensors, column 3, lines 59-61; systems to which filters apply, column 11, lines 63-64).

Regarding Claim 9, Mookerjee et al. discloses a network as claimed in claim 5, wherein each node is a sensor (Fig. 3, 324, measurement from sensor; filter for fusion of data from multiple sensors, column 3, lines 59-61) for tracking aircraft (Fig. 1, tacking system tracks an aircraft target 12 using a radar system (sensor), column 1, lines 18-20).

Response to Arguments

2. Applicant's arguments filed October 13, 2009 have been considered as follows:

- In the remarks on pages 9-11 of the amendment, applicant contends Mookerjee et al. and Eid et al. individually or in combination fail to disclose or suggest the features recited in claims 1 and 5. And, Mookerjee et al.fails to include the mixture of Gaussian distribution.
- The examiner respectfully maintains the prior prosecution in that Mookerjee et al. and Eid et al. individually or in combination disclose or suggest the features recited in claims 1 and 5. And, Mookerjee et al. disclosed the mixture of Gaussian distribution in that the Gaussian distribution approximates the maximum accelerations produced by the parameters and represented by a statistical model by weighting the states with a measurement at the filter, column 9, lines 9-22.

Conclusion

3. **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON ANDREWS whose telephone number is (571)270-1801. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rao S. Seema can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/

Primary Examiner, Art Unit 2462

LA/la
January 11, 2010